

PRODUCT BROCHURE



**rawMAT**  
PRE-HYDRATED BENTONITE



**waterproofing systems**  
KEEPING YOU WATERTIGHT



## PRODUCT DESCRIPTION

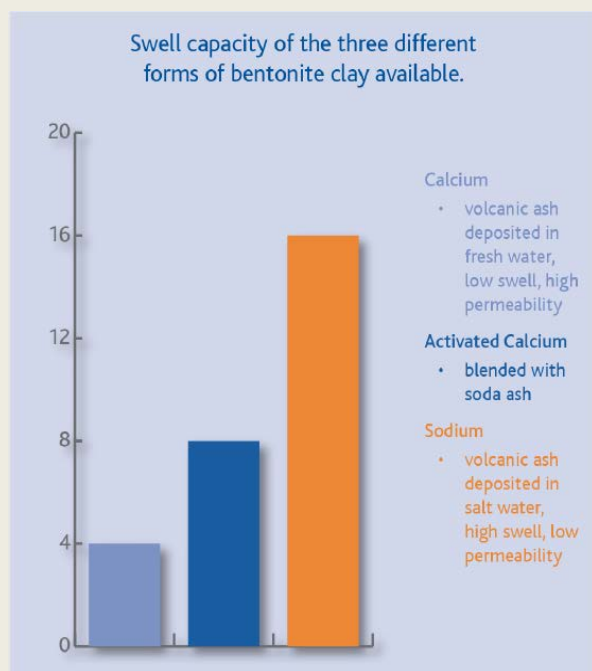
rawMAT pre-hydrated bentonite membranes and rawSEAL waterstops are manufactured from a high quality sodium bentonite clay. Bentonite is a natural clay formed from volcanic ash which can absorb water and swell to form an impermeable mass, capable of preventing the passage of liquid.

Unlike the dry bentonite systems, the pre-hydrated products are supplied in an impermeable state and don't require on-site wetting to become an impermeable barrier.

## HOW DOES SODIUM BENTONITE WORK?

The natural sodium bentonite clay will absorb water and expand up to 16 times its dry volume when in contact with water. When confined, e.g. between the ground and the floor slab, this tendency to swell generates substantial swell pressures preventing the passage of water. When correctly installed, the pre-hydrated rawMAT system acts as an effective hydrostatic seal.

An important factor affecting the amount of swell achieved is the quality of water hydrating the bentonite. The significant advantage of the pre-hydrated system is that the initial hydration occurs under factory controlled conditions.



Unlike the dry systems, which are prone to shrinkage and cracking, the rawMAT pre-hydrated bentonite is highly resistant to the effects of ground-water contaminants.

These contaminants induce cationic exchange in dry bentonite systems causing them to have a reduced swell, shrink and crack as the clay converts from sodium bentonite to the calcium form.

## AREAS OF USE

The rawMAT pre-hydrated bentonite system is used in a wide variety of below ground structural waterproofing situations, from lift pits to full tanking systems.

The rawMAT system is the premier tanking system and is used in the most challenging tanking applications.

In addition it can be used for environmental protection such as landfills and other waste containment applications and for water containment, such as lagoons and ponds.

## WHY YOU SHOULD USE RAWMAT

Unlike dry bentonite systems the rawMAT pre-hydrated bentonite system is resistant to chemical degradation (cationic exchange), is easy to install and also has the ability to withstand minor movement in the structure. Additionally the rawMAT system:

- Can be installed on damp and uncured substrates, and in inclement weather.
- Requires no priming.
- Can be nailed to the substrate.
- Loses no bentonite when handling, folding or cutting.
- Is highly resistant to chemicals and hydrocarbons.
- Are natural products with an indefinite life.
- Can be installed onto a variety of substrates including; concrete, rock-face, compacted sub-base, shutters etc. Also onto uncured or wet substrates in any weather
- Self heals when cut or damaged



Left: rawSEAL waterstop showing swelling



Right: rawMAT pre-hydrated membrane self heals when punctured

## Permeability under contaminant conditions

| Permeant   | Effective Pressure | Permeability                |
|--|--------------------|-----------------------------|
| Fresh Water  | 450 KPa            | $5.4 \times 10^{-14}$ m/sec |
| 100 K ppm Salt Water after 18 Wet/Dry Cycles             | 450 KPa            | $5.2 \times 10^{-14}$ m/sec |
| 100 K ppm Salt Water after 30 Freeze/Thaw Cycles         | 450 KPa            | $1.6 \times 10^{-12}$ m/sec |
| 30 g/l Conc. Ethylene Glycol                             | 450 KPa            | $4.9 \times 10^{-13}$ m/sec |
| 30 g/l Conc. Ethylene Glycol after 30 Freeze/Thaw Cycles | 450 KPa            | $3.9 \times 10^{-13}$ m/sec |
| Diesel Oil (Overlap with Mastic applied)                 | 450 KPa            | $2.8 \times 10^{-13}$ m/sec |
| Unleaded Petrol  | 25 KPa             | $2.1 \times 10^{-12}$ m/sec |
| Landfill Leachate (After 19 months contact)              | 25 KPa             | $2.6 \times 10^{-11}$ m/sec |
| Landfill Leachate (After 29 months contact)              | 25 KPa             | $4.6 \times 10^{-12}$ m/sec |

## Product Specification

**BENTONITE:** Natural Sodium Bentonite

|                                |                        |
|--------------------------------|------------------------|
| High density bentonite content | 8 kg/m <sup>2</sup>    |
| Membrane thickness             | 6 mm                   |
| Membrane density               | 1363 kg/m <sup>3</sup> |
| Sheet dimensions               | 1.0 m x 5.0 m          |

## MEMBRANE COMPOSITION

The rawMAT pre-hydrated bentonite central core is protected by the application of geotextile fabrics during manufacture. The tough polypropylene backing fabric provides a strong, flexible and durable carrying agent for the bentonite whilst allowing an unrestricted bentonite seal to form at the lap. Unlike other bentonite systems, no additional bentonite is required between the joints.



Above: rawMAT installed onto the roof of the Britomart transport centre, Auckland



Above: rawMAT being installed to the piles of the Deloitte Centre (BNZ Building) on Queen Street, Auckland

## RAWMAT/RAWSEAL IS AVAILABLE IN

rawMAT Type P Membrane;

- 1 x 5m Rolls

rawSEAL Waterstops;

- CS 2025 sold in cartons of 5 x 5.0m Coils

## INSTALLATION ADVANTAGE

Joining two sheets of rawMAT could not be more simple.

The nature of rawMAT enables a self sealing joint to form at all laps without the need for the addition of bentonite between the joints.

The membrane can be simply trimmed and cut with a utility knife to fit around pipes, inlets, posts and other protrusions. rawMAT has a unique solid form which can be cut without any loss of bentonite, ensuring a secure seal in all cases.

Furthermore, rawMAT can be installed on damp substrates.

## DURABILITY AND PERFORMANCE WARRANTY

The BBA durability opinion states "When installed in accordance with this Certificate, and when fully protected and subject to normal service conditions, the system will provide an effective barrier to the transmission of liquid water for the life of the building in which it is incorporated".

They go on; "When used in accordance with this Certificate, the RawMAT HDB system will meet the DPM requirements defined in section 12.2.1 of the Acceptable Solutions E2/AS1 of the building code."

When installed in accordance with the manufacturers specifications, rawMAT meets the 50 year performance requirement of the NZBC (clause B2 DURABILITY).



British Board of Agrement (BBA) approved  
(Cert. No. 97/3337, 2nd issue)



Full system specifications and installation drawings are available on our website:

[www.waterproofing.co.nz](http://www.waterproofing.co.nz)

**RAWMAT – A COMPREHENSIVE SOLUTION**

Where there is no installation access behind the walls, the rawMAT system can be pre-installed to pre-cast panels. The benefit of the pre-hydrated bentonite is that it allows the floor:wall junction to be formed as the panel is lowered into place.

Alternatively the rawMAT system can be installed onto the excavated rockface, with walls then installed onto the membrane.

Both options show how the rawMAT pre-hydrated bentonite membrane can provide a watertight solution to a complex problem.

*Right: MidCity Plaza, Fiji, Access behind the walls is impossible  
Below: in this situation the rawMAT membrane is pre-installed to the panels. Careful placement of the panel allows a watertight floor:wall junction to be formed*

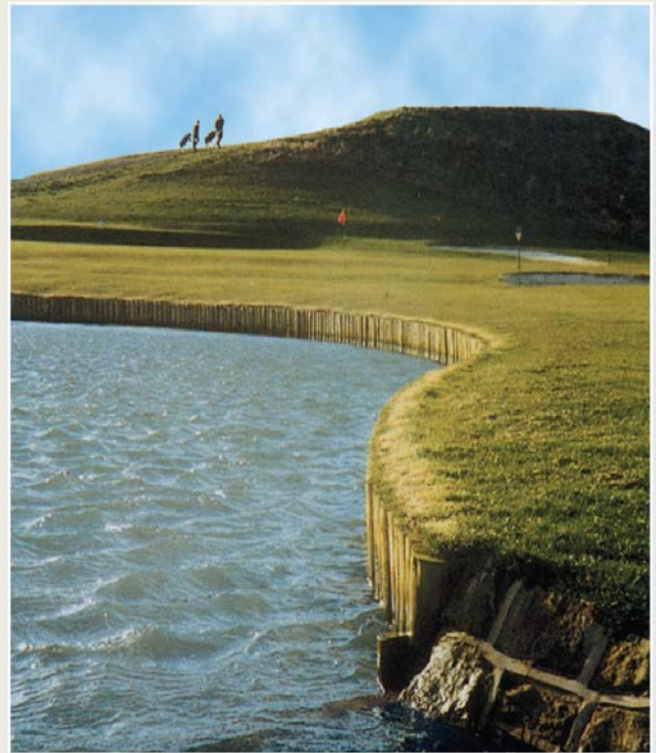


**ENVORONMENTAL APPLICATIONS**

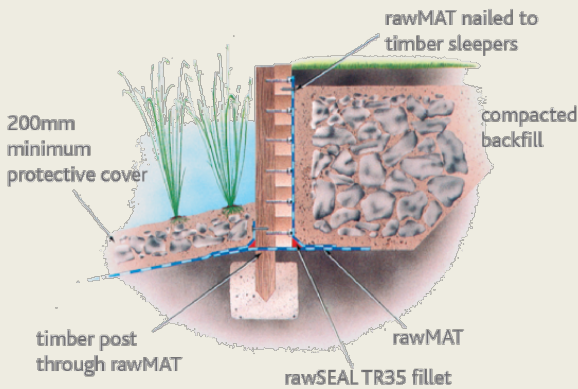
rawMAT pre-hydrated bentonite has been used extensively in a variety of environmental applications. These include waste containment, landfills and sewage schemes.

*Below: Golf Courses are a good example of an environmental application enhanced by the use of rawMAT*

It is also used for water containment applications such as ponds, lagoons and water features that require high levels of performance.



**lagoon hard edge detail**



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